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Jarkko Viinikanoja

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ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-9889

EXAMINER

YE, LIN

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,849

Applicant(s)

VIINIKANOJA ET AL.

Examiner

Lin Ye

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☒ Claim(s) 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/27/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 30 recites the limitation "**said** housing" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

For examination purpose, this claim will be interpreted as it is best understood

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3, 5, 7-10, 13, 15-18, 20, 23-25 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Arai et al. U.S. Patent 6,775,361.

Referring to claim 1, the Arai reference discloses in Figure 9, a mobile terminal device (video camera with telephone) having a camera (e.g., camera has a CCD image sensing element 409, see Col. 11, lines 40-41) system comprising a lens module (401, see Col. 11, lines 34-35) and at least one means for changing optical properties being adapted to cooperate with said lens module of said camera system (e.g., the lens module 401 is adapted

with a motor 403 for driving a zoom lens, motors 407 and 408 for driving a focus lens. The zoom objectives and auto-focus can be adjusted by microcomputer 417 via the motors as providing means extended changing of optical properties of the camera, see Col. 11, lines 35-39 and Col. 12, lines 54-55).

Referring to claim 3, the Arai reference discloses wherein a part of a housing comprises said means for changing optical properties (e.g., in Figure 9, shows a part of a housing of video camera phone system has means changing of optical properties, such as driving the lens by motors 403, and 407-408; and in Figure 4, also shows a part of housing of the video camera phone system 200 has means changing of optical properties).

Referring to claim 5, the Arai reference discloses wherein said part of said housing (the housing of the video camera phone system) integrates an assembly of a plurality of means for changing optical properties (such as zoom objects or auto-focus) each being adapted to cooperate with said lens module (401) of said camera system, wherein said assembly can be changed upon actuation (e.g., automatically change zoom and focus optical properties to adjust the focus on the object by the control signals generated from microcomputer via the motors 404, 406 and 408 for the actuation of objectives, See Col. 12, lines 26-30 and Col. 13, lines 9-32).

Referring to claim 7, the Arai reference discloses wherein said camera system is built in said mobile terminal device (camera mobile phone system) as shown in Figures 9-10.

Referring to claim 8, the Arai reference discloses wherein said camera system (303) is attached to said mobile terminal device (main body 300) as an external module as shown in

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Figures 2-3 (e.g., the camera system 303 is attached to the mobile terminal device 300, see Col. 7, lines 34-40).

Referring to claim 9, the Arai reference discloses wherein said mobile terminal device is a mobile phone as shown in Figures 9-10.

Referring to claim 10, the Arai reference discloses in Figure 9, a part of a housing (a housing of the video camera phone system) comprising at least one means for changing optical properties of a lens module of a camera system (e.g., the lens module 401 is adapted with a motor 403 for driving a zoom lens, motors 407 and 408 for driving a focus lens. The zoom objectives and auto-focus can be adjusted by microcomputer 417 via the motors as providing means extended changing of optical properties of the camera, see Col. 11, lines 35-39 and Col. 12, lines 54-55) being adapted to cooperate with said lens module (401) of said camera system (e.g., the camera has a CCD image sensing element 409, see Col. 11, lines 40-41) of a mobile terminal device.

Referring to claim 13, the Arai reference discloses wherein said part of said housing (the housing of the video camera phone system) integrates an assembly of a plurality of means for changing optical properties (such as zoom objects or auto-focus), wherein said assembly can be changed upon actuation (e.g., automatically change zoom and focus optical properties to adjust the focus on the object by the control signals generated from microcomputer via the motors 404, 406 and 408 for the actuation of objectives, See Col. 12, lines 26-30 and Col. 13, lines 9-32).

Referring to claim 15, the Arai reference discloses wherein said housing (housing of the video camera phone) is a housing of said mobile terminal device integrating said camera system as shown in Figures 9-10.

Referring to claim 16, the Arai reference discloses wherein said housing is a housing of an external camera system (303) attached to said mobile terminal device (300) as an external module as shown in Figures 2-3 (e.g., the camera system 303 is attached to the mobile terminal device 300, see Col. 7, lines 34-40).

Referring to claim 17, the Arai reference discloses wherein said mobile terminal device is a mobile phone as shown in Figures 9-10.

Referring to claim 18, the Arai reference discloses in Figure 9, means for changing optical properties (e.g., the lens module 401 is adapted with a motor 403 for driving a zoom lens, motors 407 and 408 for driving a focus lens. The zoom objectives and auto-focus can be adjusted by microcomputer 417 via the motors as providing means extended changing of optical properties of the camera, see Col. 11, lines 35-39 and Col. 12, lines 54-55) adapted to cooperate with a lens module (401) of a camera system (e.g., camera has a CCD image sensing element 409, see Col. 11, lines 40-41), wherein a mobile terminal device (the video camera phone system) comprises said camera system (409).

Referring to claim 20, the Arai reference discloses wherein a part of a housing comprises said means for changing optical properties (e.g., in Figure 9, shows a part of a housing of video camera phone system has means changing of optical properties, such the motors driving the lens; and in Figure 4, also shows a part of housing of the video camera phone system has means changing of optical properties).

Referring to claim 23, the Arai reference discloses wherein said housing is a housing of said mobile terminal device integrating said camera system as shown in Figures 9-10 (camera system built in the mobile terminal device).

Referring to claim 24, the Arai reference discloses wherein said housing is a housing of an external camera system (303) attached to said mobile terminal device (300) as an external module as shown in Figures 2-3 (e.g., the camera system 303 is attached to the mobile terminal device 300, see Col. 7, lines 34-40).

Referring to claim 25, the Arai reference discloses wherein said mobile terminal device is a mobile phone as shown in Figures 9-10.

Referring to claim 36, the Arai reference discloses in Figure 9, system for changing optical properties of a lens module of a camera system (e.g., the lens module 401 is adapted with a motor 403 for driving a zoom lens, motors 407 and 408 for driving a focus lens. The zoom objectives and auto-focus can be adjusted by microcomputer 417 via the motors as providing means extended changing of optical properties of the camera, see Col. 11, lines 35-39 and Col. 12, lines 54-55), comprising: a mobile terminal device (video camera phone system) comprising said camera system (e.g., camera has a CCD image sensing element 409, see Col. 11, lines 40-41) and means for changing optical properties adapted to cooperate with said lens module (401), wherein said mobile terminal device is a mobile terminal device according to claim 1 and said means for changing optical properties are means for changing optical properties according to claim 18 as shown in Figure 9.

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 4, 11-12, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai et al. U.S. Patent 6,775,361 in view of Suda et al. U.S. Patent 6,373,524.

Referring to claim 2, the Arai reference discloses all subject matter as discussed with respect to claim 1, except that the Arai reference does not explicitly show the means changing optical properties is detachably connected with said camera system.

The Suda reference teaches in Figure 1, an interchangeable lens assembly (127) video camera system including zoom and focus lenses (102 and 105), motors (121 and 125) for driving the zoom and focus lenses and controlled by motor control circuit (118) as providing the means for changing optical properties; and the interchangeable lens assembly is detachably connected with the camera system (camera main body 128, see Col. 5, lines 49-60). The Suda reference is evidence that one of ordinary skill in the art at the time to see more advantages the digital video camera system having an interchangeable lens assembly (including means changing optical properties) detachably attached to the camera main body so that the camera system can easily work with different types interchangeable lenses (See Col.3, lines 9-21). For that reason, it would have been obvious to one of ordinary skill in the art to modify the camera system of Arai by providing means changing optical properties is detachably connected with the camera system as taught by Suda.

Referring to claim 4, the Arai reference discloses all subject matter as discussed with respect to claim 3, except that the Arai reference does not explicitly show the part of a housing comprising the means changing optical properties is detachably connected to said camera system.

The Suda reference teaches in Figure 1, an interchangeable lens assembly (127) video camera system as part of a housing of the camera including zoom and focus lenses (102 and 105), motors (121 and 125) for driving the zoom and focus lenses and controlled by motor control circuit (118) as providing the means for changing optical properties; and the interchangeable lens assembly is detachably connected with the camera system (camera main body 128, see Col. 5, lines 49-60). The Suda reference is evidence that one of ordinary skill in the art at the time to see more advantages the part of a housing digital video camera system having an interchangeable lens assembly (including means changing optical properties) detachably attached to the camera main body so that the camera system can easily work with different types interchangeable lenses (See Col.3, lines 9-21). For that reason, it would have been obvious to one of ordinary skill in the art to modify the camera system of Arai by providing the part of housing of the system comprising means changing optical properties is detachably connected to the camera system as taught by Suda.

Referring to claim 11, the Arai reference discloses all subject matter as discussed with respect to claim 10, except that the Arai reference does not explicitly show the means changing optical properties is detachably connected.

The Suda reference teaches in Figure 1, an interchangeable lens assembly (127) video camera system as part of a housing of the camera including zoom and focus lenses (102 and

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105), motors (121 and 125) for driving the zoom and focus lenses and controlled by motor control circuit (118) as providing the means for changing optical properties; and the interchangeable lens assembly (127) is detachably connected with the camera system (camera main body 128, see Col. 5, lines 49-60). The Suda reference is evidence that one of ordinary skill in the art at the time to see more advantages the part of a housing digital video camera system having an interchangeable lens assembly (including means changing optical properties) detachably attached to the camera main body so that the camera system can easily work with different types interchangeable lenses (See Col.3, lines 9-21). For that reason, it would have been obvious to one of ordinary skill in the art to modify the camera system of Arai by providing the means changing optical properties is detachably connected with the camera system as taught by Suda.

Referring to claim 12, the Arai reference discloses all subject matter as discussed with respected to claim 10, except that the Arai reference does not explicitly show the part of a housing is detachably connected to a camera system.

The Suda reference teaches in Figure 1, an interchangeable lens assembly (127) video camera system as part of a housing of the camera including zoom and focus lenses (102 and 105), motors (121 and 125) for driving the zoom and focus lenses and controlled by motor control circuit (118) as providing the means for changing optical properties; and the interchangeable lens assembly is detachably connected with the camera system (camera main body 128, see Col. 5, lines 49-60). The Suda reference is evidence that one of ordinary skill in the art at the time to see more advantages the part of a housing digital video camera system having an interchangeable lens assembly (including means changing optical properties)

detachably attached to the camera main body so that the camera system can easily work with different types interchangeable lenses (See Col.3, lines 9-21). For that reason, it would have been obvious to one of ordinary skill in the art to modify the camera system of Arai by providing the part of housing is detachably connected to the camera system as taught by Suda.

Referring to claim 19, the Arai reference discloses all subject matter as discussed with respect to claim 18, except that the Arai reference does not explicitly show the means changing optical properties is detachably connected with a camera system.

The Suda reference teaches in Figure 1, an interchangeable lens assembly (127) video camera system as part of a housing of the camera including zoom and focus lenses (102 and 105), motors (121 and 125) for driving the zoom and focus lenses and controlled by motor control circuit (118) as providing the means for changing optical properties; and the interchangeable lens assembly is detachably connected with the camera system (camera main body 128, see Col. 5, lines 49-60). The Suda reference is evidence that one of ordinary skill in the art at the time to see more advantages the part of a housing digital video camera system having an interchangeable lens assembly (including means changing optical properties) detachably attached to the camera main body so that the camera system can easily work with different types interchangeable lenses (See Col.3, lines 9-21). For that reason, it would have been obvious to one of ordinary skill in the art to modify the camera system of Arai by providing means changing optical properties is detachably connected with the camera system as taught by Suda.

Referring to claim 21, the Arai reference discloses all subject matter as discussed with respect to claim 20, except that the Arai reference does not explicitly show the part of a housing comprising the means changing optical properties is detachably connected with said camera system.

The Suda reference teaches in Figure 1, an interchangeable lens assembly (127) video camera system as part of a housing of the camera including zoom and focus lenses (102 and 105), motors (121 and 125) for driving the zoom and focus lenses and controlled by motor control circuit (118) as providing the means for changing optical properties; and the interchangeable lens assembly is detachably connected with the camera system (camera main body 128, see Col. 5, lines 49-60). The Suda reference is evidence that one of ordinary skill in the art at the time to see more advantages the part of a housing digital video camera system having an interchangeable lens assembly (including means changing optical properties) detachably attached to the camera main body so that the camera system can easily work with different types interchangeable lenses (See Col.3, lines 9-21). For that reason, it would have been obvious to one of ordinary skill in the art to modify the camera system of Arai by providing the part of housing of the system comprising means changing optical properties is detachably connected with the camera system as taught by Suda.

6. Claims 6, 14 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai et al. U.S. Patent 6,775,361 in view of Takayama et al. U.S. Patent 6,081,389.

Referring to claim 6, the Arai reference discloses all subject matter as discussed with respect to claim 1, and Arai reference shows in Figure 9 wherein said means for changing

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optical properties is at least of the following: lens, objective comprising several lenses such as zoom lens and focus lens. However the Arai reference does not explicitly show the means changing optical properties including at least one filter, and a diffractive optical element.

The Takayama reference teaches in Figure 1, a digital camera has means for changing optical properties is at least of the following: lens, objective comprising several lenses, at least one filter (color filters included in a flat plane glass III, See Col. 4, lines 60-61), and a diffractive optical element (e.g., the lens L3 is a diffractive optical element, see Col. 5, lines 4-8). The Takayama reference is evidence that one of ordinary skill in the art at the time to see more advantages the digital video camera system having means changing optical properties that is at least that a color filter and a diffractive optical element so that the digital camera can senses a color image and canceling chromatic aberrations from lenses. For that reason, it would have been obvious to one of ordinary skill in the art to modify the system of Arai by providing means changing optical properties is at least that a color filter and a diffractive optical element as taught by Takayama.

Referring to claim 14, the Arai reference discloses all subject matter as discussed with respected to claim 10, and Arai reference shows in Figure 9 wherein said means for changing optical properties is at least of the following: lens, objective comprising several lenses such as zoom lens and focus lens. However the Arai reference does not explicitly show the means changing optical properties including at least one filter, and a diffractive optical element.

The Takayama reference teaches in Figure 1, a digital camera has means for changing optical properties is at least of the following: lens, objective comprising several lenses, at least one filter (color filters included in a flat plane glass III, See Col. 4, lines 60-61), and a

diffractive optical element (e.g., the lens L3 is a diffractive optical element, see Col. 5, lines 4-8). The Takayama reference is evidence that one of ordinary skill in the art at the time to see more advantages the digital video camera system having means changing optical properties that is at least that a color filter and a diffractive optical element so that the digital camera can senses a color image and canceling chromatic aberrations from lenses. For that reason, it would have been obvious to one of ordinary skill in the art to modify the system of Arai by providing means changing optical properties is at least that a color filter and a diffractive optical element as taught by Takayama.

Referring to claim 22, the Arai reference discloses all subject matter as discussed with respected to claim 18, and Arai reference shows in Figure 9 wherein said means for changing optical properties is at least of the following: lens, objective comprising several lenses such as zoom lens and focus lens. However the Arai reference does not explicitly show the means changing optical properties including at least one filter, and a diffractive optical element.

The Takayama reference teaches in Figure 1, a digital camera has means for changing optical properties is at least of the following: lens, objective comprising several lenses, at least one filter (color filters included in a flat plane glass III, See Col. 4, lines 60-61), and a diffractive optical element (e.g., the lens L3 is a diffractive optical element, see Col. 5, lines 4-8). The Takayama reference is evidence that one of ordinary skill in the art at the time to see more advantages the digital video camera system having means changing optical properties that is at least that a color filter and a diffractive optical element so that the digital camera can senses a color image and canceling chromatic aberrations from lenses. For that reason, it would have been obvious to one of ordinary skill in the art to modify the system of

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Arai by providing means changing optical properties is at least that a color filter and a diffractive optical element as taught by Takayama.

7. Claims 26, 29, 31 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai et al. U.S. Patent 6,775,361 in view of Zigadlo et al. U.S. Patent 6,292,212.

Referring to claim 26, the Arai reference discloses in Figure 9, a method for changing optical properties of a lens module of a camera system (e.g., the lens module 401 is adapted with a motor 403 for driving a zoom lens, motors 407 and 408 for driving a focus lens. The zoom objectives and auto-focus can be adjusted by microcomputer 417 via the motors as providing means extended changing of optical properties of the camera, see Col. 11, lines 35-39 and Col. 12, lines 54-55) comprising: changing optical properties of said lens module by actuating means (capturing a image from the object) for changing the optical properties to cooperate with said lens module (zoom and focus lenses in the lens module 401 that is placed in a accurate zoom and focus position by zoom and focus lens driving motors 403 and 408), wherein a mobile terminal device (the video camera phone system) comprises said camera system (e.g., camera has a CCD image sensing element 409, see Col. 11, lines 40-41). However, the Arai reference does not explicitly show placing the means for changing optical properties in front of the lens module.

The Zigadlo reference teaches in Figure 1, a digital electronic camera includes a optical assembly (22) is shown located in front of lens module (18); and the optical assembly (22) comprising a yellow filter 26 and a infrared filter (IR 24) (See Col. 3, lines 55-61) that placing the means for changing optical properties in front of the lens module (e.g., when the

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infrared filter 24 is positioned in front of lens 18 and the yellow filter 26 is removed, the camera 10 functions as normal electronic true color camera; when the yellow filter 26 is positioned in front of the lens 18, the camera 10 functions as an infrared camera, See Col. 3, lines 64-67 and Col. 4, lines 1-6). The Zigadlo reference is evidence that one of ordinary skill in the art at the time to see more advantages the digital video camera system placing the means for changing optical properties such as a IR filter or yellow filter in front of the lens module so that the camera can has more flexible multiple functions as a infrared camera and a true color camera (See Col. 3, lines 3-15). For that reason, it would have been obvious to one of ordinary skill in the art to modify the system of Arai by placing the means for changing optical properties in front of the lens module as taught by Zigadlo.

Referring to claim 29, the Arai reference discloses wherein integrating said means for changing optical properties (e.g., automatically change zoom and focus optical properties to adjust the focus on the object by the control signals generated from microcomputer via the motors 404, 406 and 408 for the actuation of objectives, See Col. 12, lines 26-30 and Col. 13, lines 9-32) into a part of a housing enclosing said camera system (e.g., in Figure 9, the housing of the video camera phone system integrates the means for changing optical properties with CCD image sensing element 409 together).

Referring to claim 31, the Arai reference discloses integrating an assembly of a plurality of means for changing optical properties (such as zoom objects or auto-focus) each being adapted to cooperate with said lens module (401) of said camera system and changing said assembly upon actuation (e.g., automatically change zoom and focus optical properties to adjust the focus on the object by the control signals generated from microcomputer via the

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motors 404, 406 and 408 for the actuation of objectives, See Col. 12, lines 26-30 and Col. 13, lines 9-32).

Referring to claim 33, the Arai reference discloses wherein said camera system is built in said mobile terminal device as shown in Figures 9-10.

Referring to claim 34, the Arai reference discloses wherein said camera system (303) is attached to said mobile terminal device (300) as an external module as shown in Figures 2-3 (e.g., the camera system 303 is attached to the mobile terminal device 300, see Col. 7, lines 34-40).

Referring to claim 35, the Arai reference discloses wherein said mobile terminal device is a mobile phone as shown in Figures 9-10.

8. Claims 27-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai et al. U.S. Patent 6,775,361 in view of Zigadlo et al. U.S. Patent 6,292,212 and Suda et al. U.S. Patent 6,373,524.

Referring to claim 27, the Arai and Zigadlo reference disclose all subject matter as discussed with respected to claim 26, except that the Arai and Zigadlo references do not explicitly show detachably connecting the means changing optical properties to said camera system.

The Suda reference teaches in Figure 1, an interchangeable lens assembly (127) video camera system including zoom and focus lenses (102 and 105), motors (121 and 125) for driving the zoom and focus lenses and controlled by motor control circuit (118) as providing the means for changing optical properties; and the interchangeable lens assembly is

detachably connected with the camera system (camera main body 128, see Col. 5, lines 49-60). The Suda reference is evidence that one of ordinary skill in the art at the time to see more advantages the digital video camera system having an interchangeable lens assembly (including means changing optical properties) detachably attached to the camera main body so that the camera system can easily work with different types interchangeable lenses (See Col.3, lines 9-21). For that reason, it would have been obvious to one of ordinary skill in the art to modify the camera system of Arai by detachably connecting the means changing optical properties to said camera system as taught by Suda.

Referring to claim 28, the Arai and Zigadlo reference disclose all subject matter as discussed with respect to claim 26, except that the Arai and Zigadlo references do not explicitly show detachably connecting the means changing optical properties to a part of a housing enclosing said camera system.

The Suda reference teaches in Figure 1, an interchangeable lens assembly (127) video camera system including zoom and focus lenses (102 and 105), motors (121 and 125) for driving the zoom and focus lenses and controlled by motor control circuit (118) as providing the means for changing optical properties; and the interchangeable lens assembly is detachably connected with the part of a housing enclosing the camera (camera main body 128, see Col. 5, lines 49-60). The Suda reference is evidence that one of ordinary skill in the art at the time to see more advantages the digital video camera system having an interchangeable lens assembly (including means changing optical properties) detachably attached to the camera main body so that the camera system can easily work with different types interchangeable lenses (See Col.3, lines 9-21). For that reason, it would have been

obvious to one of ordinary skill in the art to modify the camera system of Arai by detachably connecting the means changing optical properties to a part of a housing enclosing the camera system as taught by Suda.

Referring to claim 30, the Arai and Zigadlo reference disclose all subject matter as discussed with respect to claim 26, except that the Arai and Zigadlo references do not explicitly show a method for changing optical properties is detachably connected to the housing (as a part of a housing enclosing said camera system).

The Suda reference teaches in Figure 1, an interchangeable lens assembly (127) video camera system including zoom and focus lenses (102 and 105), motors (121 and 125) for driving the zoom and focus lenses and controlled by motor control circuit (118) as providing the means for changing optical properties; and the interchangeable lens assembly is detachably connected with the part of a housing enclosing the camera (camera main body 128, see Col. 5, lines 49-60). The Suda reference is evidence that one of ordinary skill in the art at the time to see more advantages the digital video camera system having an interchangeable lens assembly (including means changing optical properties) detachably attached to the camera main body so that the camera system can easily work with different types interchangeable lenses (See Col.3, lines 9-21). For that reason, it would have been obvious to one of ordinary skill in the art to modify the camera system of Arai by detachably connecting the means changing optical properties to a part of a housing enclosing the camera system as taught by Suda.

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9. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai et al. U.S. Patent 6,775,361 in view of Zigadlo et al. U.S. Patent 6,292,212 and Takayama et al. U.S. Patent 6,081,389.

Referring to claim 32, the Arai and Zigadlo reference disclose all subject matter as discussed with respect to claim 26, Arai reference also shows in Figure 9 wherein said means for changing optical properties is at least of the following: lens, objective comprising several lenses such as zoom lens and focus lens, and the Zigadlo reference shows a means for changing optical properties including color filter, a IR filter and yellow filter. However the Arai and Zigadlo references do not explicitly show the means changing optical properties including at least a diffractive optical element.

The Takayama reference teaches in Figure 1, a digital camera has means for changing optical properties is at least of the following: lens, objective comprising several lenses, at least one filter (color filters included in a flat plane glass III, See Col. 4, lines 60-61), and a diffractive optical element (e.g., the lens L3 is a diffractive optical element, see Col. 5, lines 4-8). The Takayama reference is evidence that one of ordinary skill in the art at the time to see more advantages the digital video camera system having means changing optical properties that is at least that a color filter and a diffractive optical element so that the digital camera can sense a color image and canceling chromatic aberrations from lenses. For that reason, it would have been obvious to one of ordinary skill in the art to modify the system of Arai by providing means changing optical properties is at least that a diffractive optical element as taught by Takayama.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

- a. Teramoto U.S. 6,490,419 discloses a camera has a mount for attaching the photo taking lens and this mount can also be used for attaching the data-recording device for mobile communication.
- b. Hasegawa et al. U.S. 2003/0181225 discloses mobile phone includes a casing and an image pickup device.
- c. Masutani et al. U.S. 2002/0137542 discloses a portable telephone has a connection portion with various video camera units.
- d. Heurtaux U.S. Patent 2002/0077069 discloses a mobile telephone provided with a camera is made.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin Ye whose telephone number is (703) 305-3250. The examiner can normally be reached on Mon-Fri from 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew B Christensen can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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A handwritten signature in black ink, appearing to read 'Lye', with a long horizontal flourish extending to the right.

Lin Ye
Examiner
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January 19, 2005